Operations Library

Installation and Operations Guide

OLIVETTI
PERSONAL
COMPUTER
M24

olivetti

PREFACE

This publication is directed to all users of an Olivetti Personal Computer. It provides the information necessary to install and start the system.

PRE-REQUISITE PUBLICATIONS: None

RELATED PUBLICATIONS:

MS-DOS Fundamental Operations Guide
Concurrent DOS Fundamental Operations Guide
PCOS Fundamental Operations Guide
UCSD p-System Fundamental Operations Guide

DISTRIBUTION: General (G)

FIRST EDITION: March 1984

SECOND EDITION: April 1984

THIRD EDITION: June 1984

FOURTH EDITION: September 1984

GETTING STARTED ON YOUR OLIVETTI PERSONAL COMPUTER

Thank you for choosing the Olivetti Personal Computer.

The manual and diskettes contained in this carton provide you with the basic tools necessary to install and start using your system.

A little time dedicated to reading the enclosed **Installation and Operations Guide** will be sufficient to get you started. As an initial step, you may want to take the following approach:

1. Read Appendix B to determine which modules have arrived in your shipment.

2. Read Chapter 1 for a general introduction to the system.

3. Next, read Chapter 2, which explains how to install you system.

4. To familiarize yourself with the system's operational characteristics, read Chapters 3 and 4.

RUNNING THE TUTORIAL

If your system is a dual diskette version, you can run the tutorial called "Getting to Know M24". This tutorial will reinforce what you've already learned about the system and will introduce you to some new ideas. For users other than yourself, the tutorial diskettes can serve as a complete introduction to the system -- depending on their personal needs.

The tutorial is stored on the two diskettes labeled:

<div align="center">

GETTING TO KNOW M24   **GETTING TO KNOW M24**
**Part 1**   **Part 2**

</div>

To run the tutorial, switch the system on -- as described in Chapter 4 of the **Installation and Operations Guide** -- and insert the diskette labeled Part 1 into drive A (the lower drive). Insert the diskette labeled Part 2 into drive B. The tutorial loads automatically, and provides you with all the information you require by means of messages on the video display.

The function keys on the keyboard are used to tell the tutorial program the options you want to select. There are sixteen options for you to choose from. Keyboard 1 has only ten function keys, so a key-combination is used to specify the eleventh and subsequent options. The key-combination is the **SHIFT** key plus a function key. For example, to select option number eleven, press **SHIFT** and **F1** simultaneously, for the seventeenth option **SHIFT** and **F7**, etc.

The tutorial also uses the **ESC** and Backspace keys; the accompanying illustrations show the positions of these keys, on both keyboards.

ESC   BACKSPACE

Keyboard 1

ESC   BACKSPACE
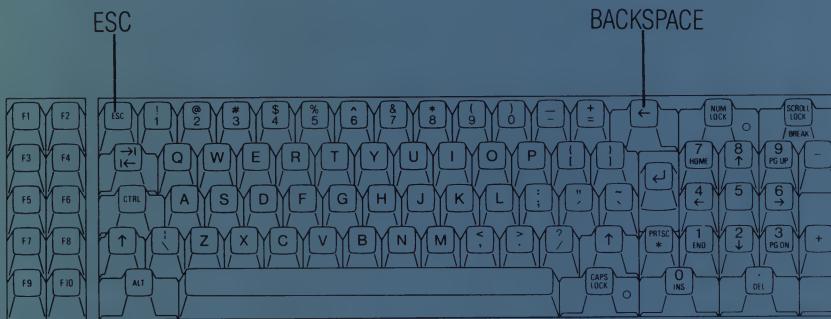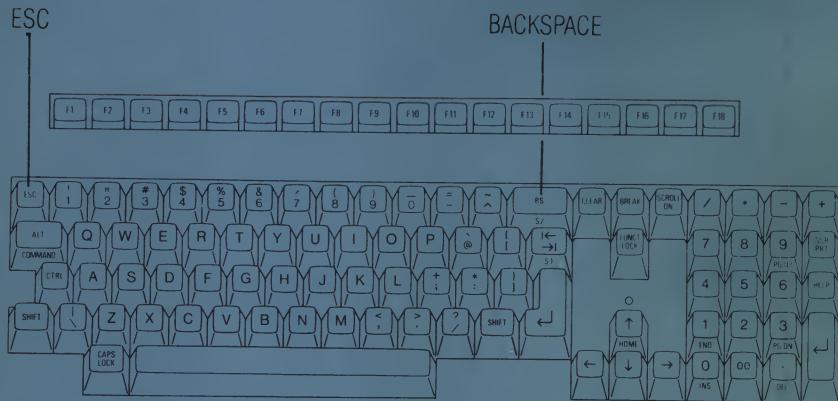
Keyboard 2

CUSTOMER TEST

If you run into any problem you think is due to a faulty component, you can use the enclosed CUSTOMER TEST diagnostic diskette to trace the cause of the problem. How to use this diskette is explained in Appendix C of the **Installation and Operations Guide**. CUSTOMER TEST should be executed before you seek technical assistance; in the long run, it can save you much time and effort.

As a final word, we should like to remind you that Olivetti is always at your disposal to ensure that you derive the maximum benefit from your computer.

Ing. C. Olivetti & C., S.p.A.
Corporate Marketing

- Concurrent CP/M-86 is a trademark of Digital Research
- Personal Basic is a trademark of Digital Research
- GSX-86 is a trademark of Digital Research
- CBASIC-86 is a trademark of Digital Research
- Dr. Logo is a trademark of Digital Research
- DDT-86 is a trademark of Digital Research
- CP/M-86 is a trademark of Digital Research
- CB-86 is a trademark of Digital Research
- ASM-86 is a trademark of Digital Research
- The p-System is a trademark of Softech Microsystem Inc.
- UCSD Pascal is a trademark of the Regents of the University of California
- PEACHPAK is a trademark of Peachtree Software International Ltd.
- UNIX is a trademark of Bell Laboratories
- PC-DOS is a trademark of International Business Machines Corp.
- Z80 is a registered trademark of Zilog Inc.
- Z8000 is a trademark of Zilog Inc.
- ETHERNET is a trademark of Xerox Corp.
- OMNINET is a trademark of Corvus Systems Inc.
- GW is a trademark of Microsoft Corp.
- MICROSOFT is a registered trademark of Microsoft Corp.
- SID-86 is a trademark of Digital Research

CONTENTS

CONTENTS

1. INTRODUCTION

ABOUT THIS CHAPTER

This chapter offers a brief overview of the system and provides an introduction to its major components.

CONTENTS

ABOUT THE SYSTEM

The M24 Olivetti Personal Computer is intended for professional use as a problem-solving tool. The system, whether stand-alone or included in a communications network, has the versatility and computing power to help the businessman, the scientist, the student, and the technician to process information quickly, accurately, and intelligently.

The system supports four operating systems:

- MS-DOS

- Concurrent DOS

- PCOS

- UCSD p-System

As a result, an extremely wide range of personal computer application packages can be used on the system.

The flexibility of the system is further enhanced by the wide range of programming languages it supports, including:

- BASIC Interpreter and BASIC Compiler

- COBOL

- Pascal

- FORTRAN

- C Language

- Assembler

Programmers can thus select the most appropriate language for solving their data processing problems, while users new to computing can develop their skills in a variety of disciplines.

The flexibility of the system's software is matched by its hardware. Memory capacity starts at 128K bytes and can be expanded to 640K bytes. In terms of external storage, the system offers a variety of options:

- single- or dual-drive diskette versions

- medium, or high density diskette storage capacity

- hard disk unit

The system can be configured with either a monochrome or a color video display, both capable of satisfying the growing demand for advanced graphic capabilities.

A wide variety of printers is available for connection to the system, offering a range of print speeds and special characteristics.

Space exists, on the motherboard, for the insertion of a wide selection of interface boards including:

- Binary synchronous communication

- Serial interface

- IEEE 488

The range and power of the system's hardware, the problem-solving capability of its software, and its total interactive nature combine to make Olivetti's personal computers second to none.

THE MAJOR COMPONENTS

Before installing your system, we suggest that you spend a few minutes familiarizing yourself with the major components of the system: the basic module, the keyboard, the display, and the printer.

THE BASIC MODULE

The basic module of the system is made up of several elements, including one or two diskette drives or an integrated hard disk unit. The video display can be placed on top of the basic module.
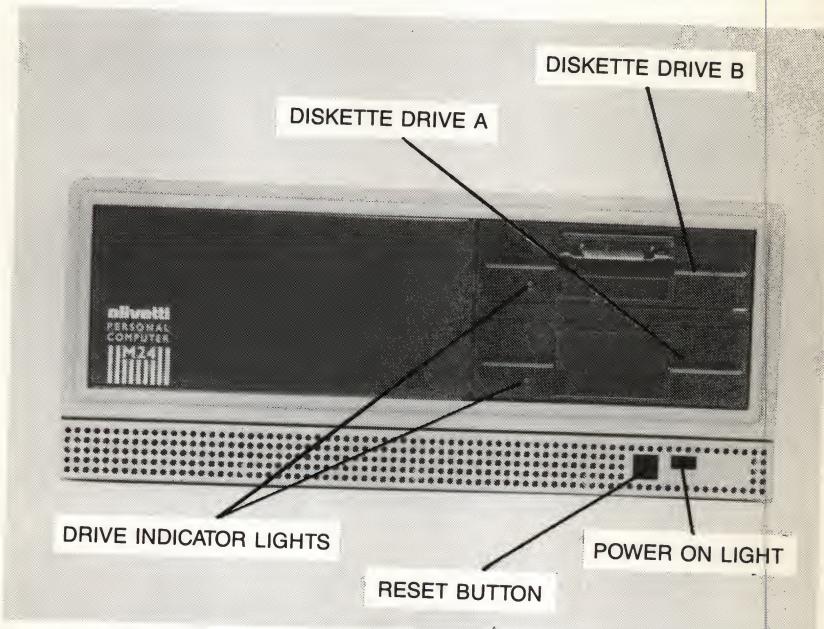
Fig. 1-1 Dual-Diskette Basic Module

The basic module of a dual-diskette system is shown in Figure 1-1.

The basic module of a single-diskette system is shown in Figure 1-2.
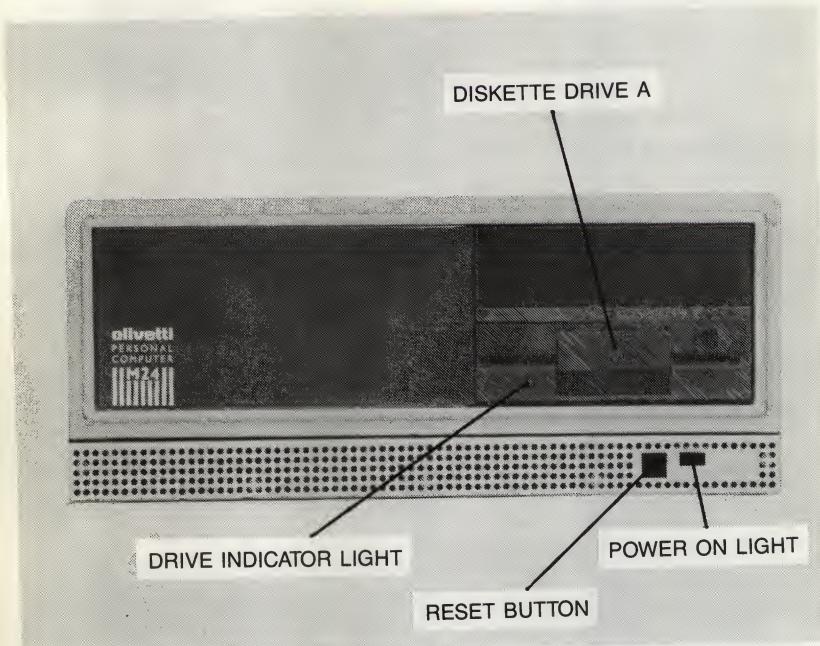
Fig. 1-2 Single Diskette Basic Module

THE KEYBOARD

Two keyboards are available for connection to the system, both are connected via a plug connection to the basic module.
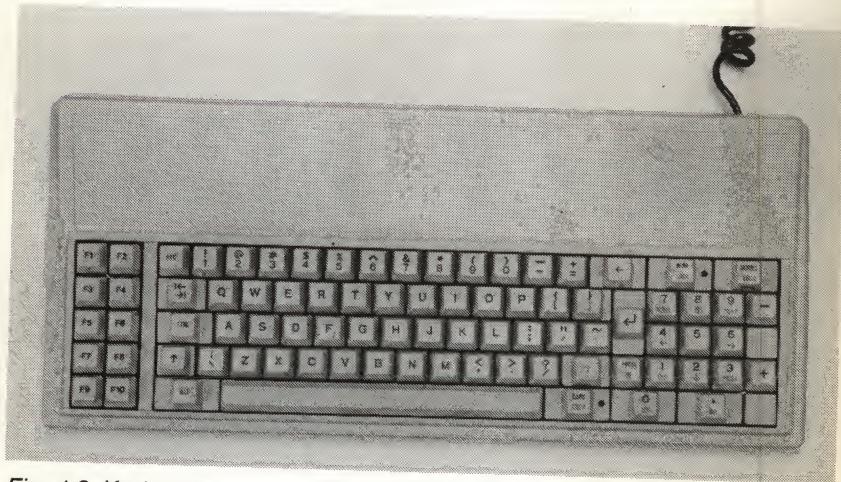
Fig. 1-3 Keyboard 1
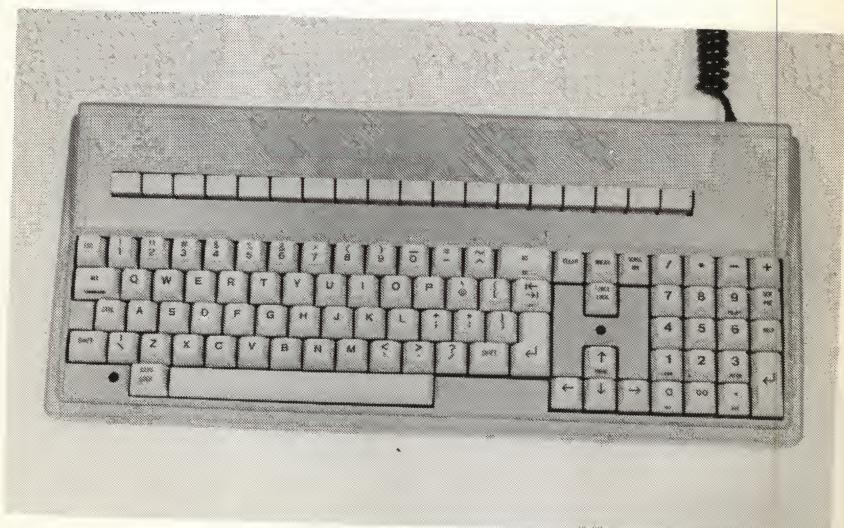
Fig. 1-4 Keyboard 2

The keyboards can be set to a convenient operating angle by rotating the feet to the desired position. The accompanying photograph shows the keyboard at maximum elevation.

ROTATABLE
KEYBOARD FOOT
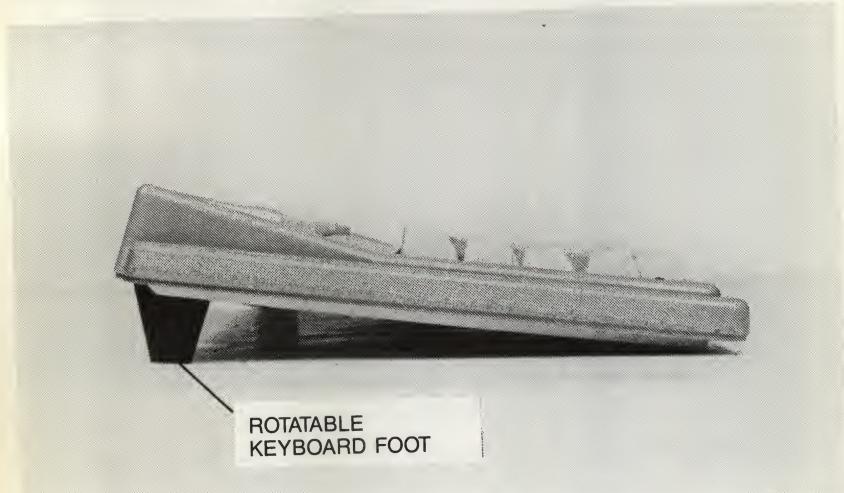
Fig. 1-5 Keyboard Feet

The Mouse

The mouse is an optional graphics input device. It is attached to the keyboard via the socket on the rear of the keyboard. The socket is illustrated in the accompanying photograph.

MOUSE CONNECTOR SOCKET
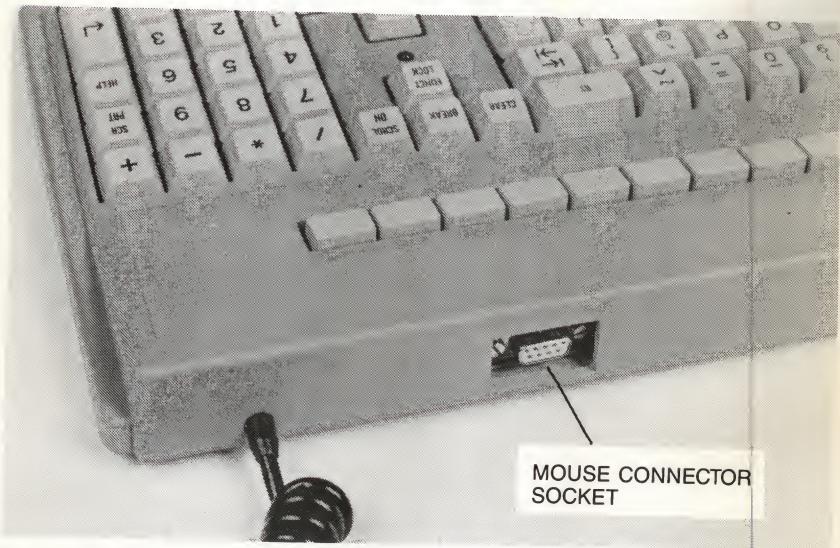
Fig. 1-6 Mouse Connection Socket

THE VIDEO DISPLAY

The system supports two different video display units, monochrome and color. Both support advanced graphics capabilities. The monochrome video display is illustrated in Figure 1-7 and the color video display in Figure 1-8.

Fig. 1-7 Monochrome Video Display

CONTRAST CONTROL

BRIGHTNESS CONTROL

SCREEN

DISPLAY CABLE

CIRCULAR BASE
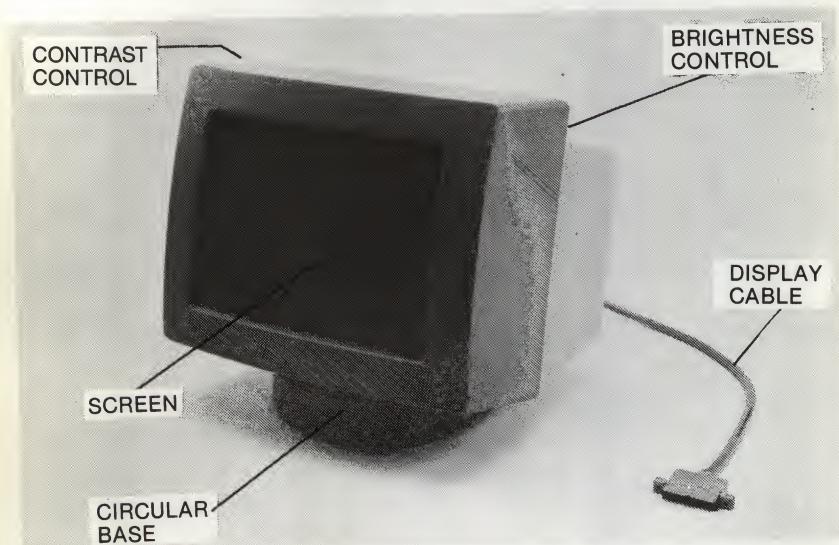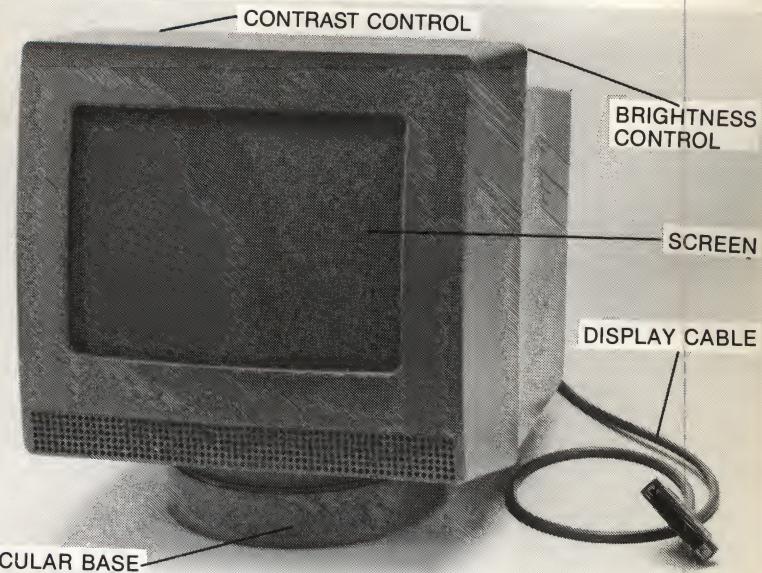
Fig. 1-8 Color Video Display

THE PRINTER

A printer is a vital element of every computer system. Olivetti offers a wide range of printing devices for use with the system, some of which are listed below:

- PR 15B: dot matrix printer with 8" carriage and graphics capability

- PR 17B: dot matrix printer with 13" carriage and graphics capability

- PR 320B: daisy wheel, letter quality printer

Installation and operating procedures for the printer you have chosen are contained in the operator's guide that accompanies the printer.

If you want further information about printers, contact your Olivetti dealer.
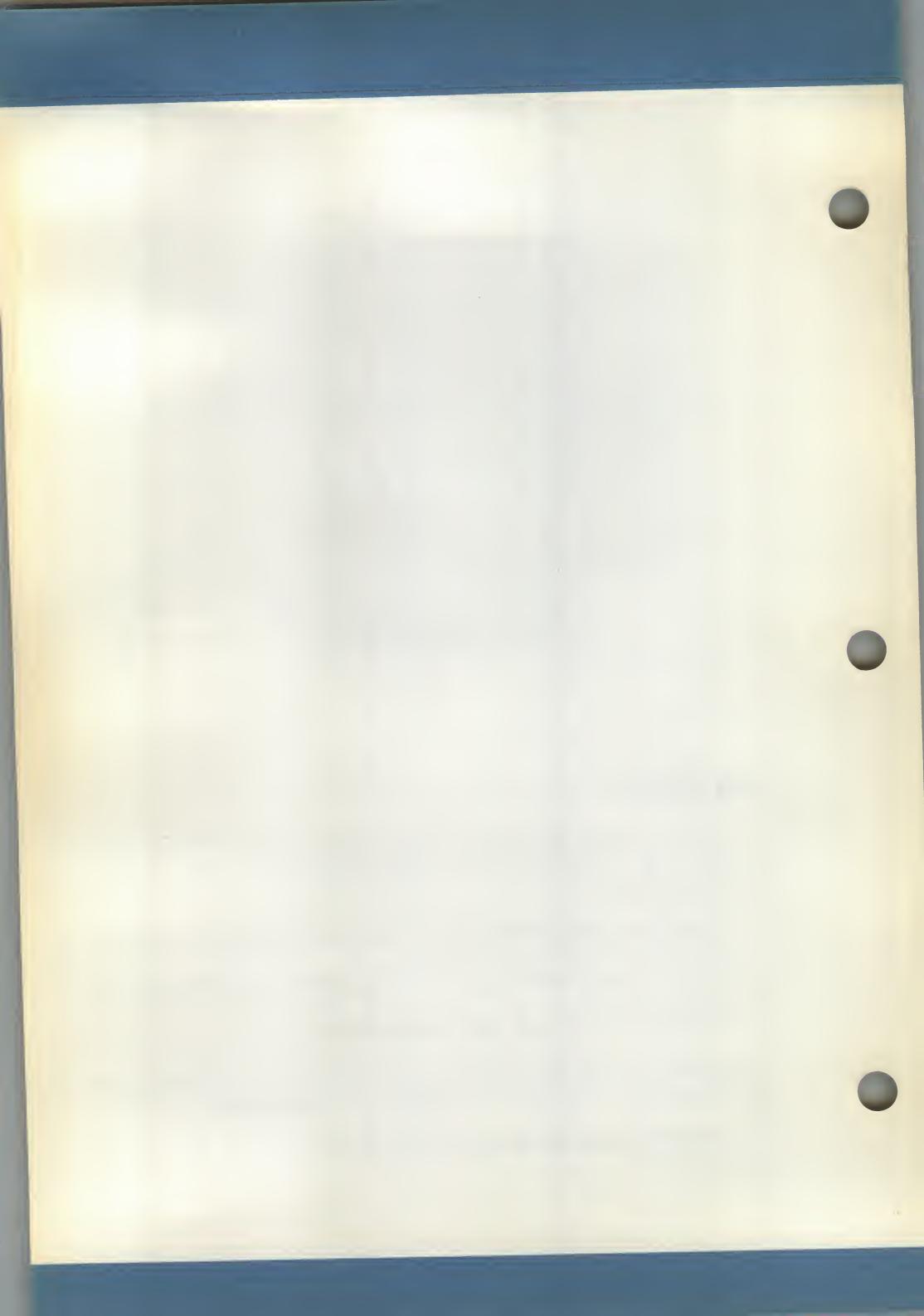
2. INSTALLATION AND CARE OF YOUR SYSTEM

ABOUT THIS CHAPTER

This chapter provides the information necessary for installing the system detailing the procedures to be followed once your system has arrived.

CONTENTS

RECEIVING YOUR ORDER

Depending upon your requirements and the availability of components, your order may arrive in more than one shipment. Before installing your system, you should wait until your entire order has arrived. Installing a full system in one session is far easier than installing portions of a system in several sittings.

SELECTING A SITE FOR YOUR SYSTEM

The system is versatile and will work effectively in a variety of environments; however, there are certain factors that must be considered before you start to install your system. The following paragraphs explain these so that you may select a suitable location for your system.

The system operates reliably in a typical office environment, but it is important to adhere to the guidelines listed below when choosing a site:

1. The SYSTEM SHOULD BE CONNECTED TO A GROUNDED (EARTHED) POWER OUTLET. Non-grounded machines do not work properly and can be a safety hazard. If the system is not connected to a grounded circuit, the following problems may occur:

   a. abnormal program execution

   b. unreadable diskettes and disks

   c. expensive machine damage

2. The system should be isolated from sources of electrical noise and from devices that can cause excessive voltage variations. Some common sources of electrical noise are:

   a. air conditioners, fans, and large blowers

   b. transformers and alternators

   c. large electrical motors such as those used in elevators

   d. radio and TV transmitters, signal generators, and high-frequency security devices

3. The system should be placed in a relatively dust-free place. Air-borne dust, dirt, and smoke can cause excessive wear on moving surfaces, as well as read/write errors.

4. The system is cooled by a fan, with inlets around the base of the basic module (see Figure 2-1). This area must be kept clear of papers or other materials that would obstruct airflow.
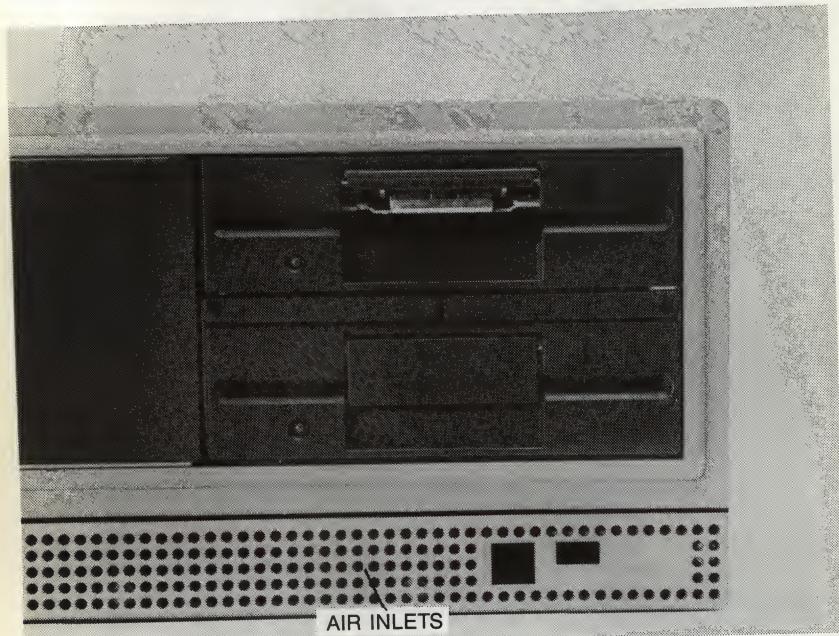

AIR INLETS

Fig. 2-1 Air Inlets

5. The system should be placed on a level surface, such as a desk-top.

After you have found a suitable location, you can remove the system from its shipping cartons and begin installing it.

UNPACKING YOUR SYSTEM

The three main elements of the system are the basic module, the video display, and the keyboard.

These components are packed in shaped polystyrene shells before being placed in their shipping cartons. The polystyrene shells protect the modules against damage during transit. To unpack your system, open the shipping cartons and remove the top section of the polystyrene shell. Lift the video display, basic module, and keyboard from the bottom part of their shells and place them at the site you have chosen. You will also find, in the basic module's shipping carton, the AC power cable, used to connect the system to the power supply.

Remove the transparent plastic coverings from each device. (We suggest that you keep all the packaging materials. You will find them useful if you ever move your system to a different location.)

ADDING MODULES

If there are any optional modules to be connected to your system, please refer to the installation reference booklets that accompany each module. The installation reference booklets can be inserted in Appendix A. This appendix contains information on the switch settings used when additional modules are installed.

CONNECTING EXTERNAL COMPONENTS

This section provides the information you need to connect the external components of your system. Before doing anything else, though, you will have to familiarize yourself with the back panel of the basic module.

THE BACK PANEL

All external components of a system are connected through one of the sockets on the back panel. Each socket provides a different interface connection, as shown in Figure 2-2.

POWER OUTPUT

ON/OFF SWITCH

OPTIONAL EXPANSION SLOTS

POWER INPUT

KEYBOARD
INTERFACE
SOCKET

PARALLEL
INTERFACE
SOCKET

SERIAL
INTERFACE
SOCKET

VIDEO DISPLAY
INTERFACE
SOCKET
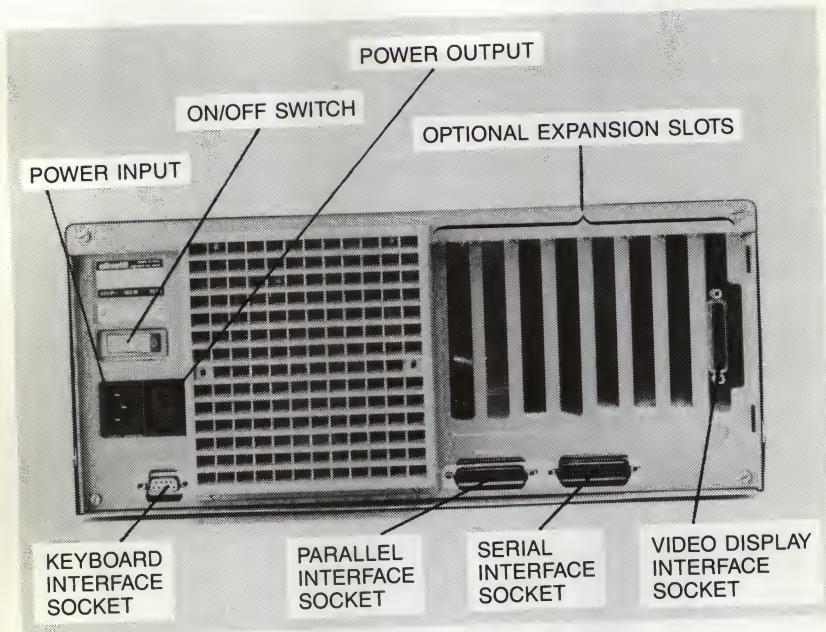
Fig. 2-2 Back Panel

- The display socket is used to connect your video display.

- The parallel interface socket is for connection of components using a parallel interface, such as the PR 15B dot matrix printer.

- The serial interface socket is for connection of components using a serial interface, such as a modem or a plotter.

- The optional interface slots are for connection of components using still other types of interface, such as the IEEE 488 parallel interface.

Having looked at the back panel, you can now begin connecting your components. Keep a screwdriver close at hand and do not connect the system to the power outlet.

CONNECTING YOUR VIDEO DISPLAY

The first component to be connected is your video display. Instructions for connecting both types of video display follow.

CONNECTING A MONOCHROME VIDEO DISPLAY

At the back of the monochrome video display is a cable with a plug at one end. To connect the video display, refer to Figure 2-3 and follow the steps detailed below:

ATTACH VIDEO
DISPLAY PLUG
HERE
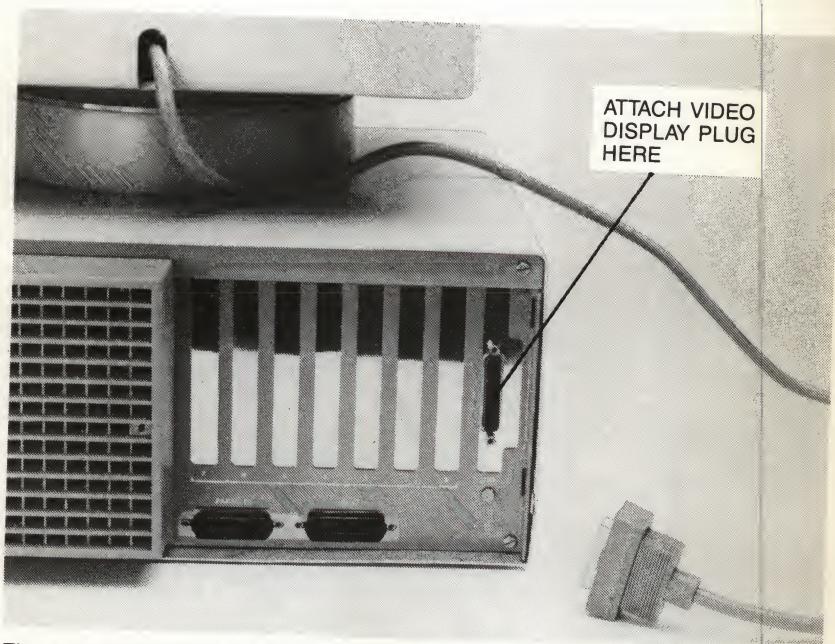
Fig. 2-3 Connecting a Monochrome Video Display

1.   Insert the plug into the video display socket.

2.   Tighten the two screws on the plug to secure the connection.

CONNECTING A COLOR VIDEO DISPLAY

The color video display is connected by means of a power cable and a signal cable. The power cable has a male plug at one end and a female plug at the other. The signal cable has an interface plug at one end and a signal plug at the other. To connect the color video display, refer to Figures 2-2 and 2-4, and follow the steps detailed below:

1. Insert the interface plug of the signal cable into the video display socket on the back panel of the basic module.

2. Tighten the two screws to secure the connection.

3. Insert the signal plug into the lower socket on the rear of the video display.
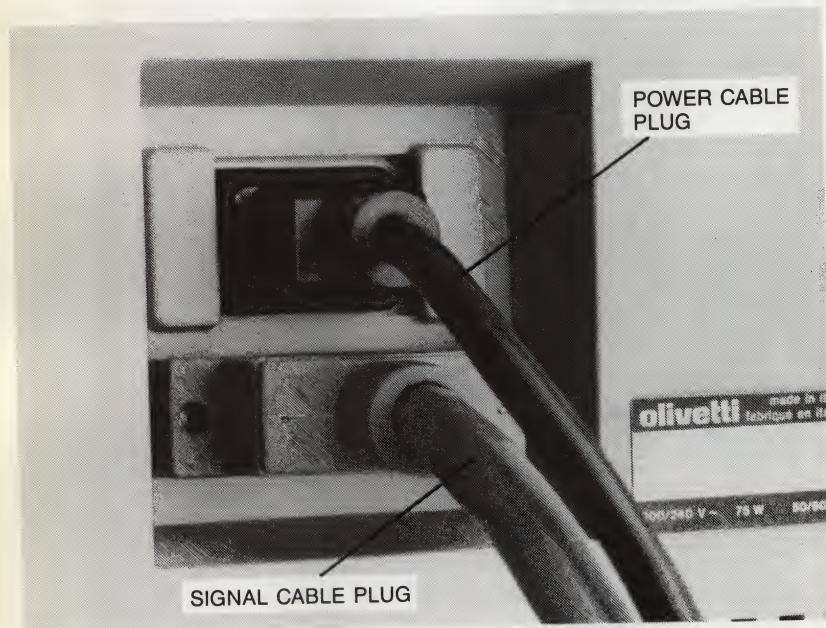
Fig. 2-4 Signal and Power Cable Plugs for Color Video Display

4. Tighten the two screws on the lower socket to secure the connection.

5. Insert the female plug of the power cable into the upper socket on the rear of the video display.

6. Insert the male power plug into the power output socket on the back panel of the basic module.

CONNECTING A KEYBOARD

To attach the keyboard, refer to Figure 2-5, and follow the steps detailed below:

ATTACH KEYBOARD PLUG HERE
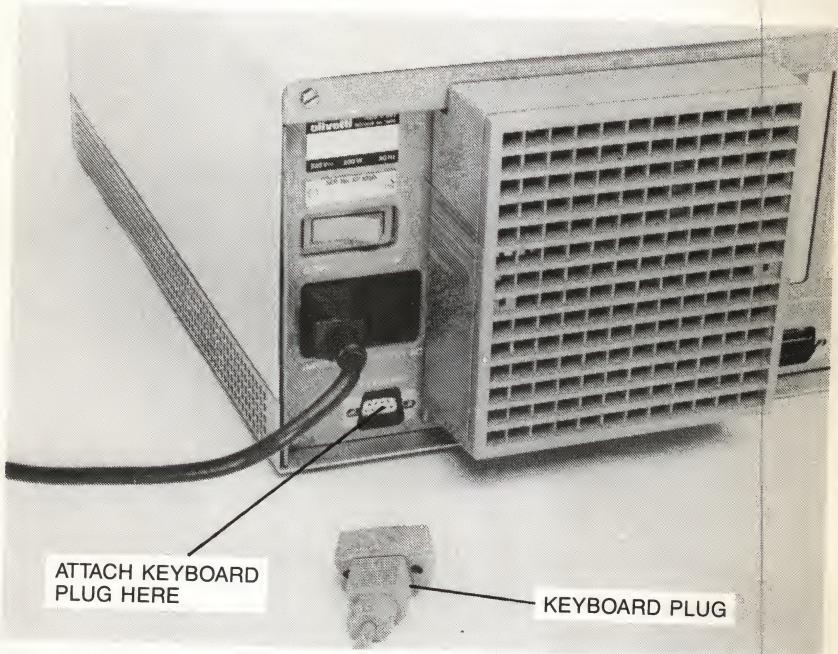
KEYBOARD PLUG

Fig. 2-5 Connecting the Keyboard

1. Insert the plug at the end of the keyboard signal cable into the keyboard socket on the rear of the basic module.

2. Tighten the two screws on the plug to secure the connection.

CONNECTING YOUR PRINTER

Your printer has an operator's guide that explains how to unpack and connect it. The guide also contains instructions for the setting of necessary switches.

After you set up your printer, we suggest you place the operator's guide in this manual. This manual will then become a complete installation document for your system.

DISKETTE DRIVE PROTECTION CARDS

Open the diskette drive cover(s) and remove the diskette drive protection card(s). A diskette drive protection card protects the drive from damage while the system is in transit.

CONNECTING THE SYSTEM TO A POWER OUTLET

Before doing anything else, ENSURE THAT THE VOLTAGE AND FREQUENCY OF THE POWER OUTLET ARE THE SAME AS THOSE SPECIFIED ON THE STICKER AFFIXED TO THE BACK PANEL OF THE SYSTEM.

1. Make sure that the ON/OFF switch is in the OFF position (see Figure 2-6)

2. Insert the female plug of the AC power cable into the power input socket on the back of the system (see Figure 2-2).

3. Connect the AC power cable to the power outlet you have selected.
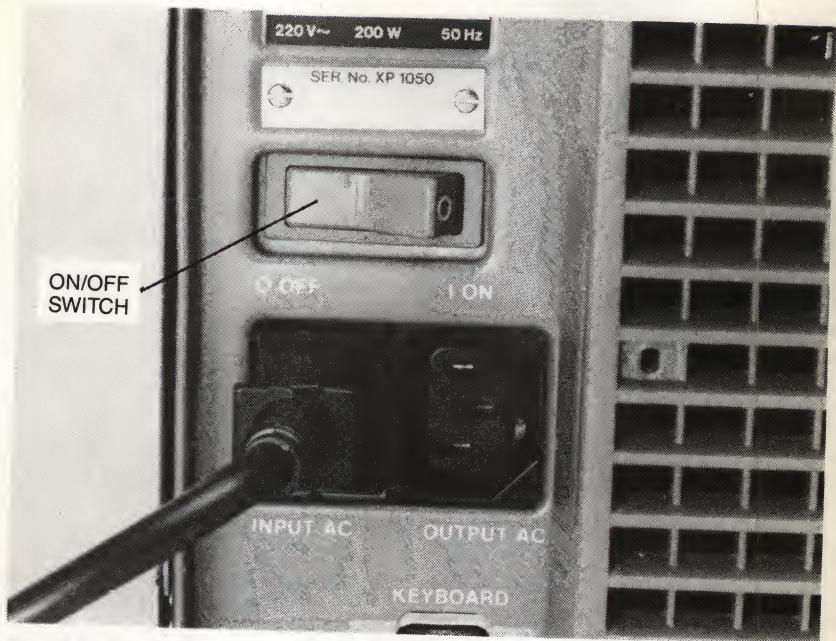
Fig. 2-6 ON/OFF Switch in the OFF Position

Note: If you use an extension cable, it should be grounded (earthed).

At this point you could power on, but we suggest that you hold off for a short while. Start-up procedures are fully explained in Chapter 4, while an understanding of the concepts explained in the next chapter is vital to making the most of your system.
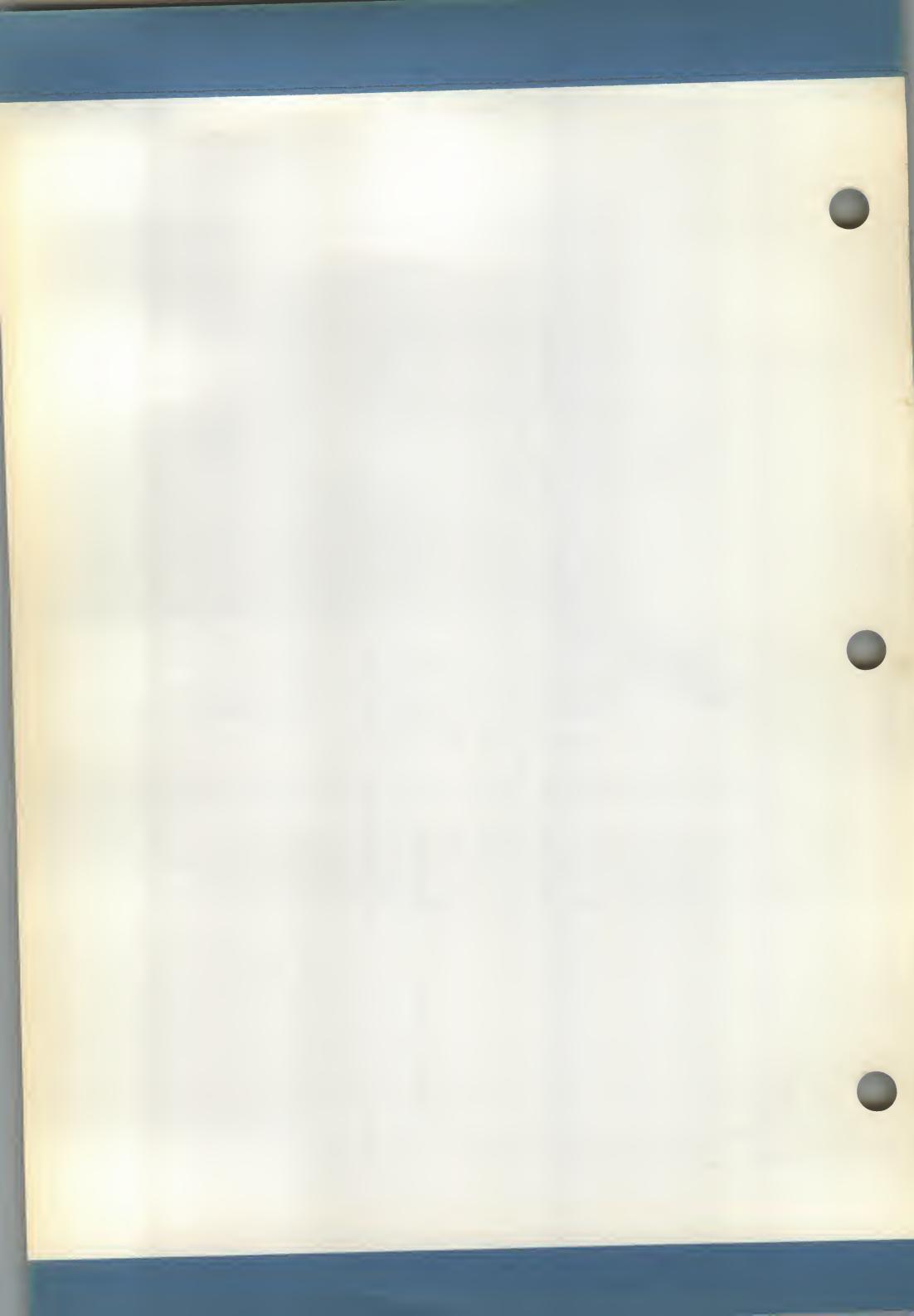
3. DISKETTES, DISKS, AND DRIVES

ABOUT THIS CHAPTER

This chapter explains how to handle and care for diskettes and provides additional information on drives and the hard disks.

CONTENTS

Now that you have assembled the various components of your system, you'll want to start working with it. Before doing so, however, you will have to know more about diskettes, disks, and drives. We'll examine these subjects here.

DISKETTES

All models of the Olivetti system make use of diskettes for the storage of information: programs, files of data, groups of related commands, texts, etc. Perhaps the most important diskette is the system diskette. This diskette contains the operating system, as well as a series of commands that allow you to perform fundamental operations with your system.

Application software is distributed on diskette. Diskettes come in different capacities; at a minimum, they can hold about 320,000 bytes of of information; a byte is equivalent to a character, such as the letter **A** or the digit **3**.A diskette with the cardboard envelope in which it is stored, is shown in Figure 3-1. New diskettes generally come in cartons of ten, together with a supply of labels and write-protect stickers.
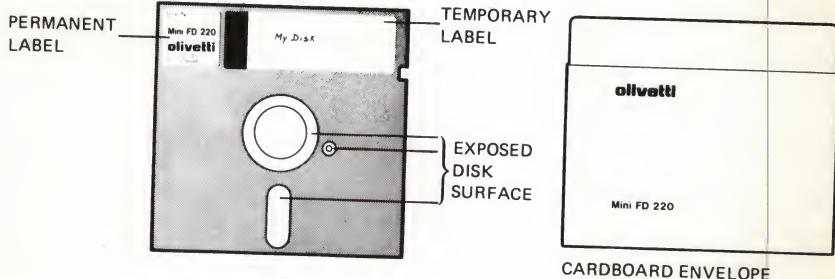
Fig. 3-1 Diskette and Envelope

CARE AND HANDLING

Although diskettes are not particularly fragile, careful handling will minimize the risk of damaging them.

- Avoid bending the diskettes. They are flexible but, if bent too far, the diskette surface will crease permanently.

- Avoid contact with the exposed diskette surface. The diskette itself is circular and made of a very thin magnetized substance. The part you handle and to which labels are attached is actually a protective cover that also keeps the diskette semi-rigid. Of necessity, some parts of the diskette are exposed. These are susceptible to scratches.

- Avoid exposing the diskettes to dust. You can do this by:

  - keeping diskettes in their cardboard envelope when not in use.

  - storing diskettes inside their carton, with the lid on.

  - keeping the diskette drive covers closed even when there are no diskettes inside. If dust is kept out of the drives, it won't get on the diskettes.

- Don't place heavy objects, such as books, on diskettes.

- Don't attach anything to diskettes with paper clips or rubber bands.

LABELS

As shown in Figure 3-1, there are two types of label attached to a diskette:

- the permanent label, affixed by the manufacturer

- the temporary label, which you affix yourself

The first is termed permanent because it is never removed. The second is termed temporary because you can peel it off whenever you need to. Here are some suggestions about labeling that can help prolong the life of your diskettes:

• Avoid writing on a temporary label that is already affixed to a diskette. If you must do so, don't use a pen or pencil with a sharp point -- *which* might damage the diskette surface. Use a felt-tipped pen.

• Don't stick labels on top of labels. Always peel off the old one before applying the new one. The best way to remove and apply temporary labels is with the diskette resting on a flat surface and inside its cardboard envelope.

WRITE-PROTECTION

Write-protection prevents the contents of a diskette from being altered. A write-protected diskette can only be read by the system; the system cannot write on it. This security stops you from inadvertently destroying important information stored on a diskette.

Figure 3-2 shows how to write-protect a diskette.

Peel a write-protect sticker off the sheet supplied with each new carton of diskettes, and wrap it around the write-protect notch on the edge of the diskette. That's all there is to it.

WRITE
PROTECT
NOTCH

WRITE
PROTECT
STICKERS
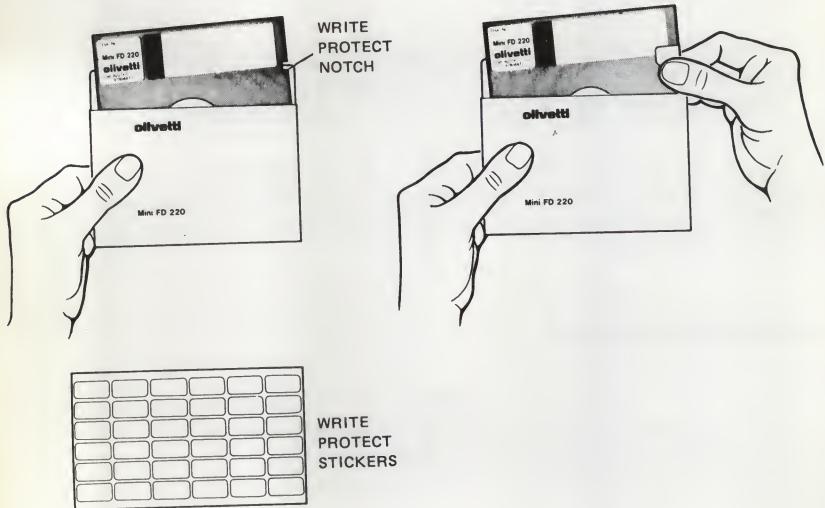
Fig. 3-2 Write-Protecting

If you want to remove write-protection, to add or change some information on the diskette, just peel off the write-protect sticker. With the sticker off, the system can write on the diskette.

Of course, there is no need to write-protect a diskette until it contains some worthwhile information. One diskette already does: the system diskette. For this reason, if it isn't write-protected already, you should protect it now.

BACKUPS

A backup is a copy of important information, kept in reserve for an emergency. You make backups by using an operating system command. Backups can be made of a whole diskette or part of a diskette. When you make a backup, remember to **always** write-protect the diskette original. Having made a backup copy, you should store the original in a safe place, and use the copy.

INSTALLATION AND OPERATIONS GUIDE

DISKETTE DRIVES

A diskette drive, which is protected by a drive cover, is a piece of electro-mechanical equipment that rotates a diskette. While a diskette is being rotated, the system can read from it and write to it. The following paragraphs explain how to insert a diskette into a drive and how to remove one.

INSERTING A DISKETTE

To insert a diskette into a drive, refer to Figure 3-3, and do the following:
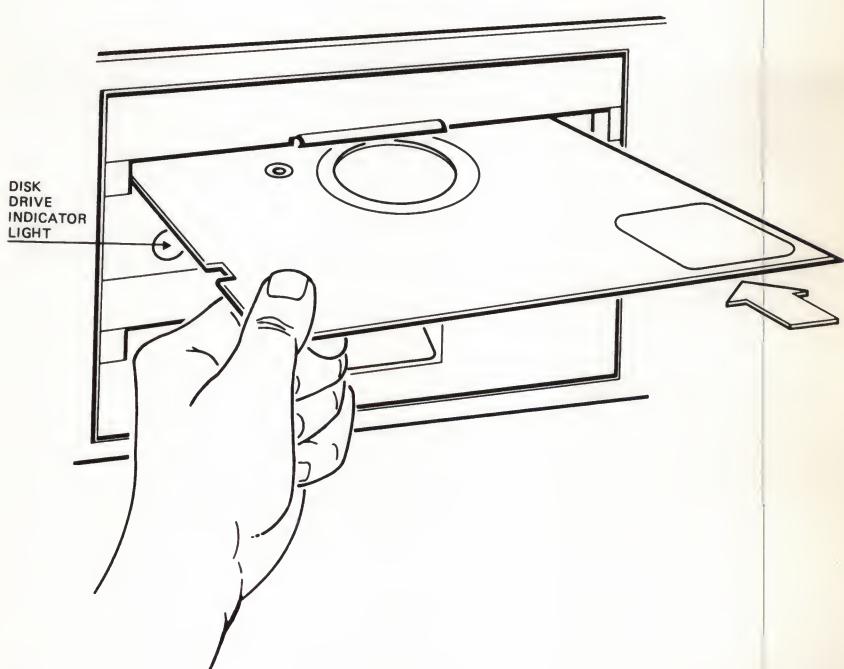
Fig. 3-3 Inserting a Diskette

1. Open the drive cover. Depending on the type of diskette drive(s) installed in your system, the drive cover is opened either by pushing a lever, or by pushing the cover upwards.

2. Insert the diskette into the slot with its label facing upward and outward, as shown in Figure 3-3.

3. Push the diskette gently into the drive, until you feel it settle into position. Don't attempt to force it; if it won't go easily, withdraw the diskette and re-insert it.

4. When the diskette has settled into position, close the drive cover.

REMOVING A DISKETTE

To remove a diskette, open the drive cover. This automatically pushes the diskette out of the drive so that it can be removed.

A diskette can safely be removed with the system turned on or off. That makes no difference. It is extremely important, however, that you **NEVER** remove a diskette while it is being accessed by the system -- read from or written to. Doing so will cause, at best, an error condition; at worst, it will destroy the information on the diskette.

You can tell if a diskette is being accessed by looking at the indicator light of the drive it is in. **If its indicator light is on, don't remove the diskette** (see Figure 3-3).

DRIVE IDENTIFIERS

To read information from, or write information to, a diskette you must specify the drive in which the diskette is loaded. To specify the drive, you use a "drive identifier". The form of the drive identifier depends on the operating system being used. With MS-DOS and Concurrent DOS alphabetic identifiers are used:

• The lower diskette drive is drive A.

• The upper diskette drive, if present, is drive B.

With PCOS numeric drive identifiers are used:

- The lower drive is drive 0

- The upper drive, if installed, is drive 1.

HARD DISKS

A hard disk is a mass storage device, capable of holding a minimum of ten million bytes. If your model of the system has a hard disk, it will be your primary storage medium, though you'll be able to use diskettes too.

The hard disk is fixed in place and cannot be removed. Even so, in terms of operation, the hard disk is similar to the diskette. The hard disk is rotated by a drive allowing the system to read from it and write to it.

Information is easily transferred from diskette to hard disk and vice versa. It is usual to copy the contents of the system diskette and any application software onto the hard disk. After this is done, you can work with just the hard disk, using diskettes merely to backup important programs and files.
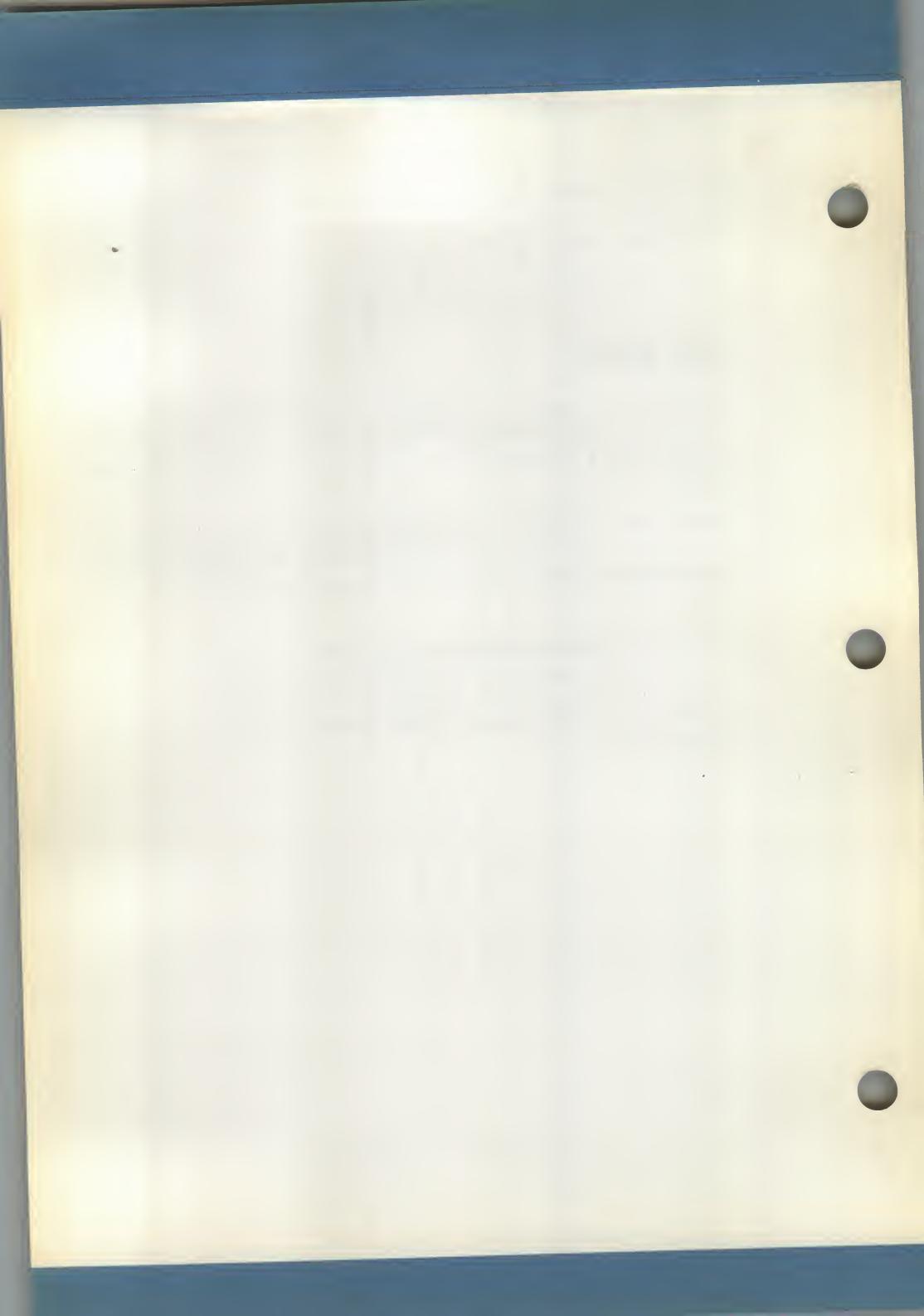
4. GETTING STARTED

As you can see, the keyboard is divided into three sections:

- a column of ten function keys to the left of the keyboard

- an alphanumeric section similar in most respects to a normal typewriter keyboard

- a numeric keypad, incorporating some additional command keys, and the cursor control keys

KEYBOARD 2

The major differences between this keyboard and keyboard 1 are:

- a different keyboard layout

- eighteen function keys, as opposed to ten

The layout of this keyboard is illustrated in Figure 4-2.

Fig. 4-2 Keyboard 2

As you can see this keyboard is divided into four sections:

- a row of eighteen function keys at the top of the keyboard

- an alphanumeric keyboard similar in most respects to a normal typewriter keyboard

- a numeric keypad

- cursor control key section

A WARNING ABOUT NUMBERS

Numbers appear both in the alphanumeric section and the numeric keypad and can be keyed in from either. The system is not concerned where the numbers come from, providing that it gets a number when a number is required. (Exceptions to this general rule are documented with the applications in which such exceptions occur.)

In ordinary typing you can use a lowercase l or an uppercase I for the digit one. Similarly, you can use an alphabetic O for the digit zero.

If you do this with a computer the results are unpredictable.

Always use numeric keys for one and zero.

USING THE KEYBOARD

For the entry of text or data, the system keyboard can be used as a normal typewriter, once the appropriate program has been loaded. However, when it comes to using the keyboard to communicate with the system - to tell it, for example, that you have finished entering a command - then one of the special keys has to be used. The following sections describe some of the functions performed by the special keys.

For ease of reference, this material is listed by function, rather than by key. Where differences exist between the two keyboards, these will be noted.

ENDING AN ENTRY

While you are typing on the system keyboard, the information is not being transferred to the system's memory. To transfer information entered via the keyboard, to the system's memory, press the carriage return key. The carriage return key is the angled-arrow key on the right of the alphanumeric section of the keyboard. For the rest of this guide, this key will be referred to as the **CR** key.

The information to be transferred to the system's memory is called an entry. An entry can be an item of data, a program statement, or a command. Whatever the nature of the entry, the system will not act on it until the **CR** key has been pressed.

ENTERING UPPERCASE CHARACTERS

To enter uppercase characters:

- for keyboard 1 press either of the broad vertical arrows while entering the characters to be set in uppercase

- for keyboard 2, press either of the **SHIFT** keys while entering the character(s) to be set in uppercase

From now on, within this manual, these keys will be referred to as **SHIFT** keys.

To lock the alphanumeric keyboard in uppercase mode, use the **CAPS LOCK** key. While the keyboard is locked in uppercase, a lowercase character can only be typed by pressing the **SHIFT** key with the required character key.

To return to normal keyboard mode, press **CAPS LOCK** .

MULTI-CHARACTER KEYS

On both keyboards, some keys can generate a maximum of five characters. The position of these five characters on the key is shown in the following figure:
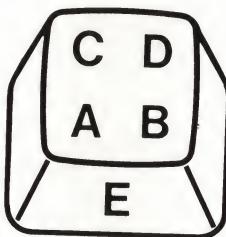
Fig. 4-3 Multi-character Key Top

To access the required character follow the rules listed below:

A - press the key (unshifted)

B - press **ALT** and the key together (unshifted)

C - press **SHIFT** and the key together

D - press **ALT** **SHIFT** and the key together

E - press **CTRL** **ALT** and the key together.

CORRECTING TYPING ERRORS

If you make a typing error and send the erroneous data to the system, the system may produce unpredictable results, an error message, or do nothing at all. If you notice a typing error before the entry is completed, that is before you hit the **CR** key, you can use the backspace key to move back to the incorrect character, or characters.

The backspace key is the rightmost key on the top row of the alphanumeric section of the keyboard. Any characters between the start of the backspace operation, including the character you want to change, will be deleted. Having corrected the error(s), complete the entry and press **CR** .

STOPPING A COMMAND

Sometimes you will want to stop the execution of a command before its normal conclusion, and enter another command. A common example is the stopping of a long listing of the files stored on a disk - once you have spotted the file you are searching for.

To stop the execution of a command, first press the **CTRL** key. With the **CTRL** key held down, press the **BREAK** key. When both keys are released, the execution of the command will terminate, and the system will be ready to accept another command.

Note: On keyboard 1, the **BREAK** key appears with **SCROLL LOCK** written on the top of the key and **BREAK** written on the front of the key.

AUTOMATIC REPEAT FEATURE

If a key is held down, the associated character or function is repeated for as long as the key is pressed. This feature also operates when certain key combinations are used.

The automatic repeat feature works with almost all the the keys on the keyboard, but there are a few exceptions. With certain keys, for example the **SHIFT** key, the automatic repeat feature would serve no logical purpose.

SYSTEM RESET

This feature allows you to stop all system activity, and it has an effect similar to switching the power off and back on again, but is less stressing to power supply electronics. Executing a system reset returns the system to its initial status. Any work in progress is lost when a system reset is executed, so this facility should be used with care. To reduce the possibility of accidentaly executing a System Reset a three-key combination is used, and all three keys have to be pressed together.

The key combination for System Reset is **CTRL   ALT   DEL**

STARTING THE SYSTEM

This section describes how to power up the system, and what the system does during the power-up sequence.

POWER UP

1. Ensure that the power switch on the rear of the system is in the OFF position.

2. Plug the basic module into the power outlet.

3. Find the video display's brightness control and, as you face the screen, turn it to full intensity, all the way to the right.

4. Remove any diskette that may have been left in a drive.

5. Push the power switch to the ON position.

AUTODIAGNOSTICS

When the system is turned on, it executes a series of tests to check that the basic components of the system are functioning correctly. This series of tests is referred to as autodiagnostics.

The time taken by these tests depends on the configuration of the system. As a general rule, the larger the memory installed in the system, the longer the tests will take to complete.

Any errors discovered during the autodiagnostics are signaled to the user, for this reason the screen brightness should be set to maximum (as described in the previous section); if the screen brightness is set to minimum, any error messages may not be visible, nor will the initial start-up screen be visible at the end of a successful autodiagnostc phase.

Nothing Appears On The Screen

If, after a couple of minutes, the screen remains blank, and you are sure that screen brightness has been properly set, there may be a problem with the display. Switch the system off, by pushing the power switch to the OFF position, wait for about a minute and push the power switch to the ON position again. If, after a minute or so, the screen remains blank, switch the system off and contact your Olivetti dealer.

AUTODIAGNOSTIC MESSAGES

During the autodiagnostic phase, the system displays a message concerning the component currently being tested. At the successful completion of each test, the word **Pass** will appear next to the component's name, for example:

CPU (i8086) Pass

If an autodiagnostic fails then the word **Fail** appears next to the component's name, for example

DMA Timer Fail

HOW TO RESPOND TO AUTODIAGNOSTIC ERROR MESSAGES

Although a **Fail** message may appear, it does not necessarily mean that the system cannot be used. Some errors are transient. If a **Fail** message appears, you should execute a **Hardware Reset** .

Note: A Hardware Reset should not be confused with the system reset, described earlier. Among other differences, a system reset can only be executed once the system is working properly. That point has not yet been reached.

Hardware Reset

To execute a hardware reset press the Reset button, (see Figure 4-4) which you will find on the front of the Central Unit, at the bottom right hand corner.
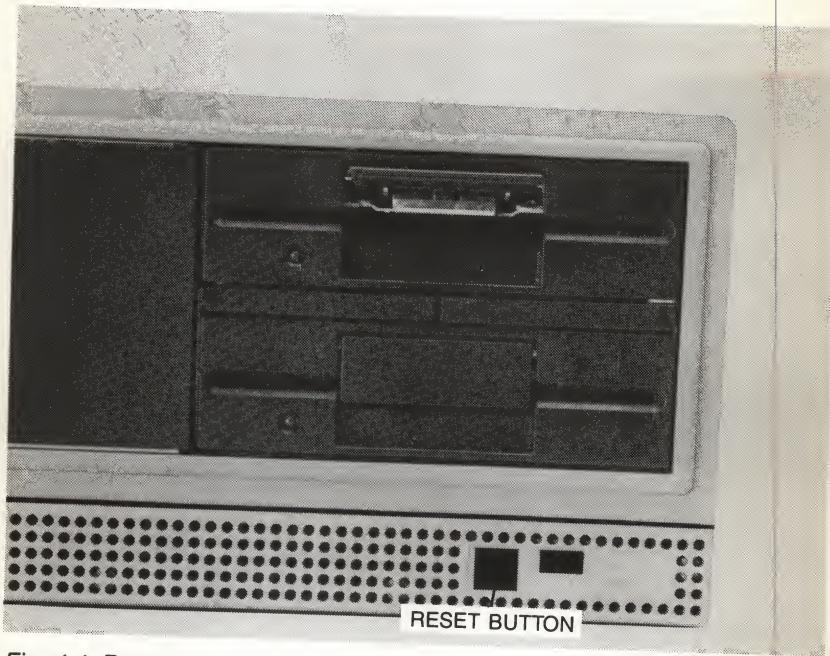

Fig. 4-4 Reset Button

Executing a hardware reset causes the autodiagnostics to be executed again. If a **Fail** message appears again, make a note of it and contact your Olivetti dealer.

At the successful completion of the autodiagnostic phase, the system is ready to start work, and it looks for a system disk.

At the moment there is no system disk loaded, so a message is displayed.

The system is now ready to load an operating system.

The Fundamental Operations Guide, for the operating system you have chosen, serves as an introduction to that operating system. You should refer to it now for information on how to load and use the system.
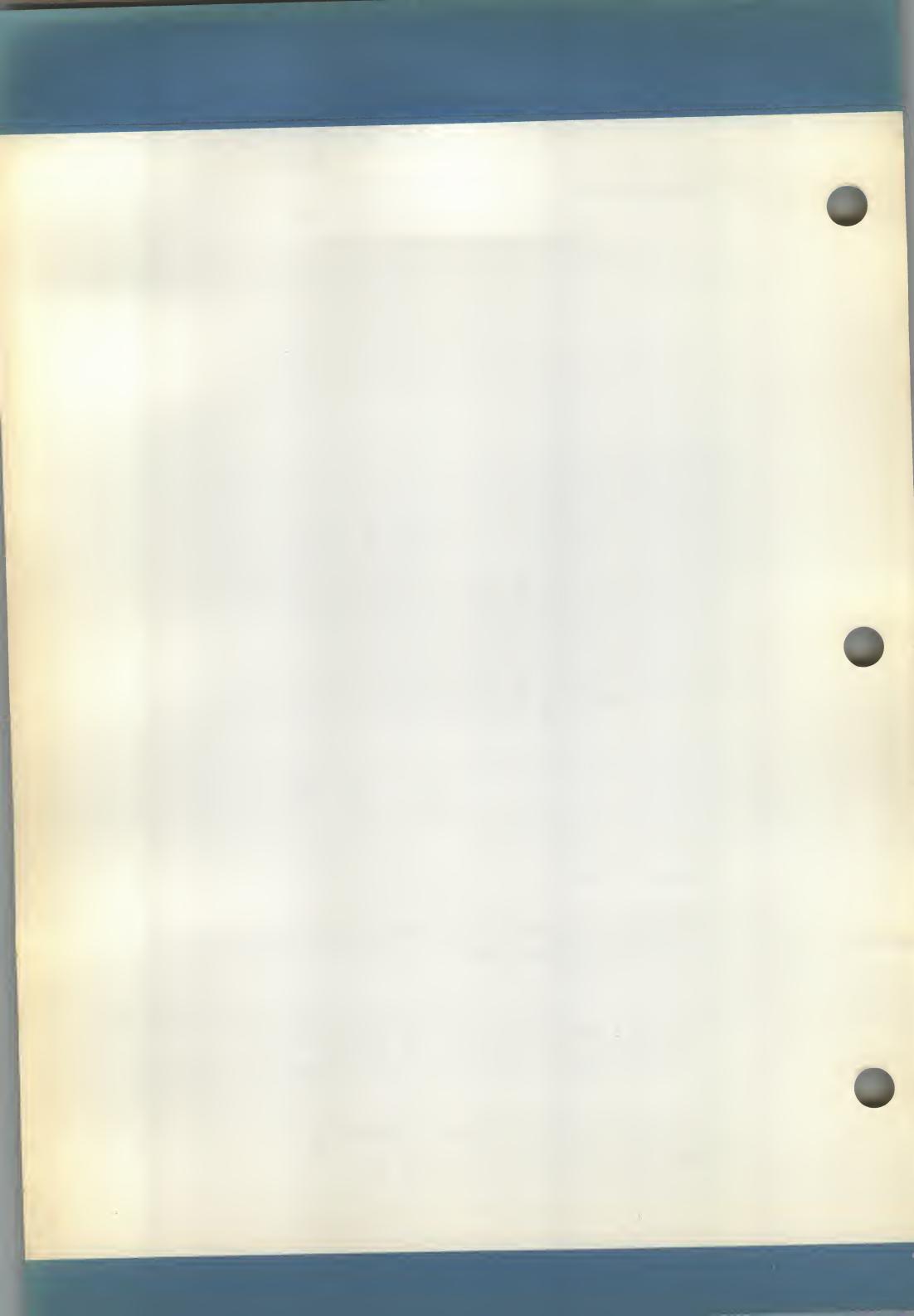
A. INSTALLING OPTIONAL MODULES

This appendix allows you to file any installation reference booklets for optional modules. Before installing such modules you should make a note of the current switch settings on the card which you will find in the pocket inside the back cover of this manual. This card should then be affixed to the casing of the system's module.

SWITCH SETTINGS

Switches in the M24 system are set to reflect the addition of memory and other installed options. Switches are located on the motherboard.

The switches are dual inline pin (dip) switches that can be easily set with a ballpoint pen. Refer to the diagrams below to familiarize yourself with the switches that are used in the M24 system. The slide switches are set by pushing them to the desired position ON towards the number (1,2 etc) and OFF towards the zero (0).
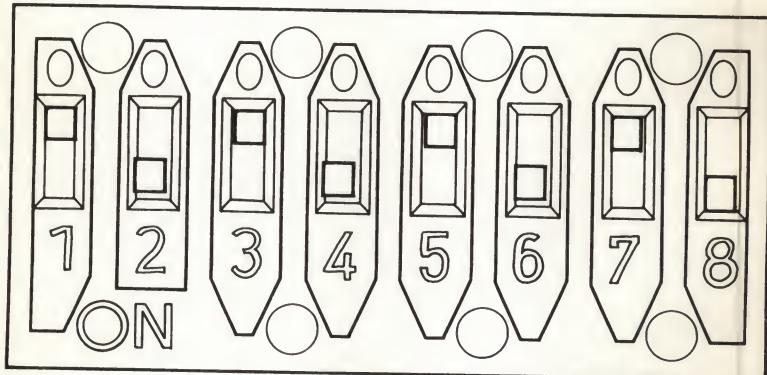

Fig. A-1 Slide Switch

The two slide switches on the motherboard are known as DIPSW-0 and DIPSW-1. Their location is shown in the figure below:

DIPSW – 1

DIPSW – 0
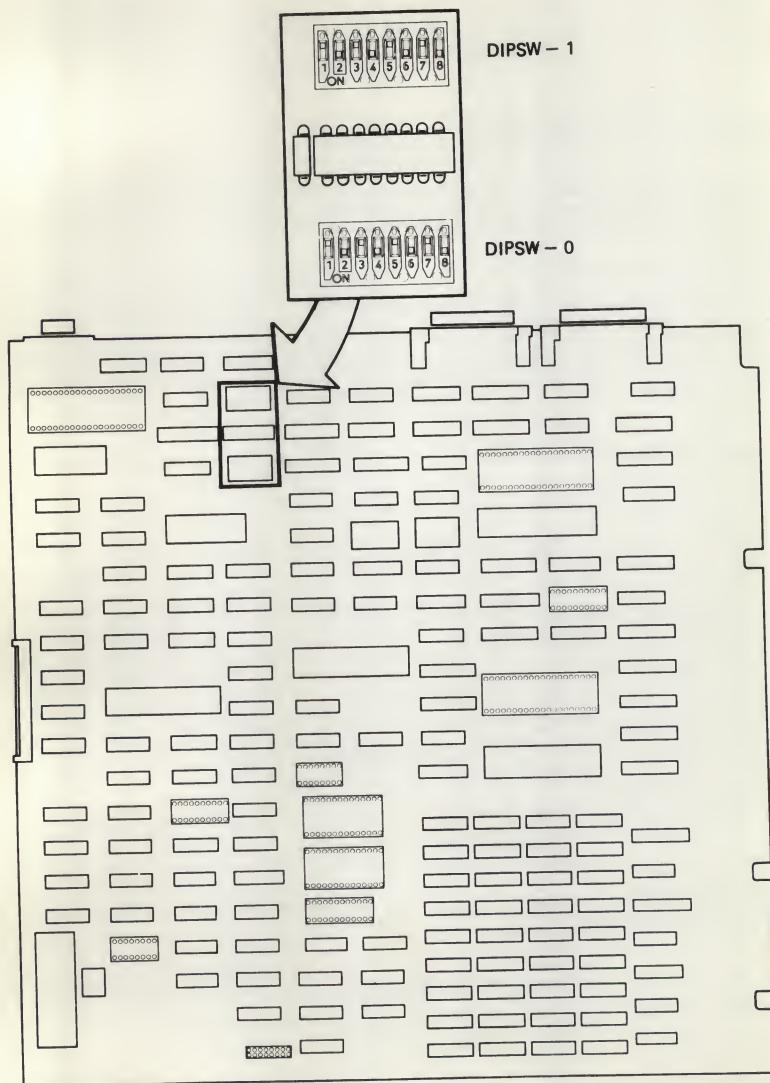
Fig. A-2 Motherboard Switches

INSTALLATION AND OPERATIONS GUIDE

B. HOW TO CHECK YOUR ORDER

ABOUT THIS APPENDIX

This appendix lists the mnemonic codes and random codes of the system components, together with a brief description of the component. The list will assist to check and identify the items ordered.

Before installing your system, you should ensure that your complete order has arrived. This appendix will assist you in making that determination.

A delivery label is fixed to the outside of each shipping carton you receive. Each system component contained in the carton is listed in terms of its "mnemonic description." The mnemonic description appears in the column headed MODEL, on the extreme left of the label. To obtain a full description of the component, look up its mnemonic description in Table B-1 below.

As you find each component in the Table, place a check mark next to it on your Order Form. When all items on your Order Form have been accounted for, you can begin installing your system.

Note that Table B-1 does not contain any information on printers. Printers are delivered separately and have their own installation and operating instructions. You can, therefore, install your system BEFORE your printer arrives.

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
BU 2451	48168 P	Basic module composed of: - motherboard with 128K bytes RAM - power supply - controllers for diskette drives, display and keyboard - asynchronous serial interface - parallel (Industry Standard) interface

▶

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
BU 2451	48168 P	- one 320K byte diskette drive
BU 2452	48178 K	Identical to BU 2451, except that a 640K byte diskette drive is installed
BU 2453	48179 M	Identical to BU 2452, but includes a slim 10 megabyte hard disk unit (HDU) and HDU controller
BU 2455	48181 H	Identical to BU 2453, but includes 320K byte diskette drive
MEM 2428	48182 B	128K byte memory expansion board
EXM 2429	48169 R	128K byte memory expansion kit
MFE 2420	48170 T	320K byte diskette expansion kit
MFE 2440	48171 L	640K byte diskette expansion kit

HOW TO CHECK YOUR ORDER

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
HDU 2410	48184 P	10 megabyte hard disk module
HDC 2415	48185 R	Hard disk controller
BUS 2407	48172 N	Bus extention board, providing seven expansion slots
APB 2481	48199 E	Alternate processor board for PCOS support
SIC 2431	48186 K	Integrated communication kit
SIC 2432	48187 M	Integrated communication extension kit
ANK 2463	48174 S	Keyboard 1
ANK 2462	48173 Q	Keyboard 2
GRD 2469	48188 G	Mouse (graphic input device)
CBL 2497	48189 A	Extension cable for keyboard and video

MNEMONIC DESCRIPTION	RANDOM CODE	DESCRIPTION
DSM 2412 V	48175 U	12" monochrome video display (green)
DSM 2412 B	48190 L	12" monochrome video display (white)
DSM 2412 A	48191 D	12" monochrome video display (amber)
DSM 2412 C	48192 F	12" color video display
EGC 2413	48193 H	Color extension board
SIC 2482	48195 M	Twin serial interface controller board
PIC 2483	48196 P	IEEE 488 interface board
CBL 2491	48176 W	Parallel interface cable
CBL 2492	48177 Y	Serial interface cable
CBL 2493	48209 C	Current loop cable
CBL 2495	48214 J	IEEE 488 interface cable

Tab. B-1 Component Descriptions

Neither the mnemonic description nor random code appears on the optional boards. Users are strongly advised to affix labels to these boards for easy identification.

C. ADDITIONAL TESTING FACILITIES

ABOUT THIS APPENDIX

This appendix describes CUSTOMER TEST, an in-depth set of diagnostic routines that you can use to test the components of your system.

CONTENTS

INTRODUCTION

To minimize the risk of faulty components interfering with processing, the system executes a series of autodiagnostic tests when it is switched on. Despite these initial tests, hardware problems may still occur during processing. If one does, it is important to pinpoint the exact cause of the problem, a task that is not always easy. Consider the following:

A program has been written, tested, and repeatedly executed -- without problems. One day, while this program is being executed, a disk I/O error is signaled. There are many possible causes, the two most obvious being a damaged diskette or a faulty drive. If the program executes successfully when run from a backup diskette, the problem is almost surely a damaged diskette. If, however, the I/O error recurs, a faulty drive is the probable cause. Note, that this is a probability -- not a certainty.

To help isolate the cause of hardware problems, a set of diagnostic routines -- CUSTOMER TEST -- is provided with your system.

This appendix describes each of these routines in detail.

CUSTOMER TEST

CUSTOMER TEST is the name of a collection of diagnostic routines that are used to test the correct functioning of the various components of the system. The CUSTOMER TEST package is supplied on diskette with every system. The package contains routines to test the following components:

- Video Display

- Keyboard

- Motherboard

- Memory

- Disk drives (for both diskette and hard disk)

- Serial interface(s)

- Parallel interface(s)

The CUSTOMER TEST package is controlled by means of selection menus. Each of the diagnostic routines displays operating instructions (where required) on the screen; the package, therefore, is extremely easy to use.

LOADING CUSTOMER TEST

CUSTOMER TEST should be used whenever a faulty component is suspected. Messages issued by CUSTOMER TEST are self-explanatory, and the information you collect -- and can pass along -- by running the package can markedly reduce repair time.

There are two ways to load CUSTOMER TEST. If the system is powered off:

1. Insert the CUSTOMER TEST diskette in drive A.

2. Close the diskette drive door.

3. Set the power ON/OFF switch to ON.

4. When the power-up diagnostics have finished successfully, the CUSTOMER TEST diagnostics are loaded, and the main menu screen is displayed.

If the system is already on:

1. Insert the CUSTOMER TEST diskette in drive A.

2. Close the diskette drive door.

3. Press and hold down the **CTRL** and **ALT** keys, then press the **DEL** key. Release all three keys.

4. The CUSTOMER TEST diagnostics are loaded and the main menu screen is displayed.

Once loaded, CUSTOMER TEST displays a message asking you to select either Automatic or Manual mode.

AUTOMATIC MODE

In automatic mode, CUSTOMER TEST tests the installed hardware, moving from test to test automatically.

MANUAL MODE

When CUSTOMER TEST is run in manual mode, you select the individual test, or tests, to be run. A message is displayed requesting you to specify whether you want to run the tests once, or more than once. If you choose to run a test more than once, CUSTOMER TEST will request you to specify the number of times (loops) the test is to be executed.

RUNNING CUSTOMER TEST

Once you have made your selection, CUSTOMER TEST displays all the information you require to run the diagnostics.

If a fault is found, a message will be displayed defining the nature of the problem. At the end of every diagnostic, a table is displayed summarizing the results of the tests.

In the event of a serious fault, you should contact your Olivetti dealer and pass on the results produced by CUSTOMER TEST.
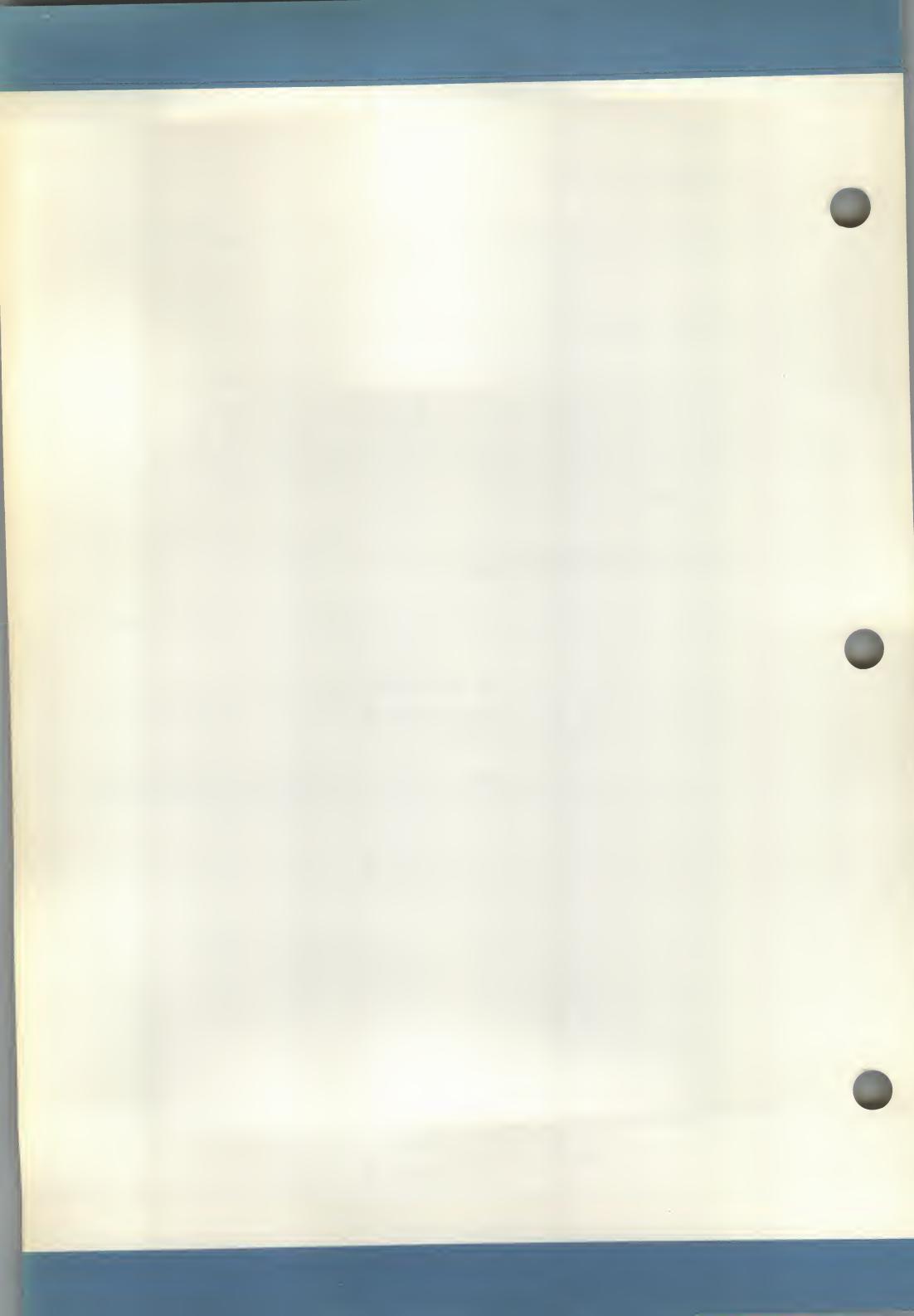
INDEX

A

A, as a drive identifier, 3-6
air inlets, 2-2
ALT key 4-5, 4-7
  ALT + CTRL + DEL for
    system reset, 4-7
angled-arrow key, 4-4
application software
  distribution of, 3-1
Assembler language, 1-1
assembling the system,
  instructions for, (see also:
  connecting), 2-3 — 2-8
Assembly language, (Assembler
  language), 1-1
autodiagnostics, 4-7 — 4-8

B

B, as a drive identifier, 3-6
back panel of basic module, 2-3
backspace key, 4-6
backups
  diskette, 3-4
BASIC Compiler, 1-1
BASIC Interpreter, 1-1
basic module
  back panel, 2-3
  connecting to power outlet,
    WARNING, 2-8
binary synchronous
  communication interface
    board, 1-2
blank screen, on start-up, 4-8
boards, interface
  binary synchronous
    communication, 1-2
  IEEE 488, 1-2
  serial interface, 1-2
BREAK key, 4-6
brightness control, location of
  color video display, 1-9
  monochrome video display, 1-8

broad vertical arrow key, 4-4
button, reset, 4-9
byte, definition of, 3-1

C

C Language, 1-1
capacity, storage
  of diskettes, 3-1
  of hard disk, 3-7
  of memory, 1-1
capital letters
  (uppercase characters), how to
    enter, 4-4
CAPS LOCK key, 4-4
carriage return key, 4-4
central unit (see: basic
  module)
checking your order, B-1
COBOL, 1-1
command, stopping execution
  of, 4-6
communications, optional
  interface boards for, 1-2
components
  checking receipt of, B-1
  list of, B-1
Concurrent DOS, 1-1, 3-6
connecting
  external components, 2-3 — 2-8
  keyboard, 2-7
  optional modules, 2-3
  printer, 2-8
  system to power outlet, 2-8
  video display, color, 2-6 — 2-7
  video display,
    monochrome, 2-5
contrast control, location of
  color video display, 1-9
  monochrome video
    display, 1-8
copy of diskette for
  backup, 3-4

correcting typing errors, 4-5 — 4-6
CR key, 4-4
CTRL + ALT + DEL for system
  reset, 4-7
CTRL key, 4-5, 4-6, 4-7
CUSTOMER TEST
  automatic mode, C-3
  loading, C-2
  manual mode, C-3
  overview of, C-1
  running, C-3

D

daisy wheel printer, 1-9
data protection on
  diskette, 3-3
DEL key
  DEL + ALT + CTRL for
    system reset, 4-7
diagnostic routines (see:
  CUSTOMER TEST)
diagnostics, when system is
  powered-up, 4-7 — 4-8
disk (see: hard disk)
diskette drive identifiers
  A, 3-6
  B, 3-6
diskette drives
  identifiers, 3-6
  indicator light, 3-5 — 3-6
  inserting a diskette, 3-5
  protection cards, 2-8
  removing a diskette, 3-6
diskette labels
  permanent, 3-2 — 3-3
  temporary, 3-2 — 3-3
  writing on, 3-3
diskette, system
  contents of, 3-1
diskettes
  as storage media, 3-1
  care and handling of, 3-2

copying, 3-4
  making backups of, 3-4
  storage capacity of, 3-1
  write-protection, 3-3 — 3-4
display (see: video display)
dot matrix printers, 1-9
drive identifiers
  A, 3-6
  B, 3-6
drives, diskette
  A, as identifier, 3-6
  B, as identifier, 3-6
  identifiers, 3-6
  indicator lights, 3-5 — 3-6
  inserting a diskette, 3-5
  removing a diskette, 3-6

E

earthed circuit, need for, 2-1
ending an entry, 4-4
entries
  correcting, 4-5 — 4-6
  ending, 4-4
  numbers, a warning, 4-3
  uppercase characters, 4-4
environment, operating, 2-1
errors in typing,
  correcting, 4-5 — 4-6
extension cable, use of, 2-9
external storage
  list of options, 1-1 — 1-2

F

Fail message, 4-8
feet, keyboard, 1-6
fixed disk (see: hard disk)
floppy disks (see: diskettes)
FORTRAN, 1-1

INSTALLATION AND OPERATIONS GUIDE

INDEX

frequency
  requirements, 2-8
  WARNING notice, 2-8
function keys
  on keyboard 1, 4-1
  on keyboard 2, 4-2

G

grounded circuit, need for, 2-1
guidelines
  for diskette care
    and handling, 3-2
  for site selection, 2-1 — 2-2

H

hard disk
  as storage medium, 3-7
  storage capacity of, 3-7
hardware reset, performing a, 4-9

I

identifier, diskette drive,
  A, 3-6
  B, 3-6
IEEE 488 interface board, 1-2
indicator light, diskette
drive, 3-5 — 3-6
inserting a diskette, 3-5
installing the system,
  instructions for, (see also:
    connecting), 2-3 — 2-8
interface boards
  binary synchronous
    communication, 1-2
  IEEE 488, 1-2
  serial interface, 1-2

K

key
  ALT, 4-5, 4-7
  CTRL, 4-5, 4-6, 4-7
  DEL, 4-7
multi-character, 4-5
keyboard
  adjusting operating angle, 1-6
  automatic repeat feature, 4-6
  entering numbers from, a
    warning, 4-3
  how to connect, 2-7
  how to use, 4-3
  locking in uppercase
    mode, 4-4
  socket for mouse
    connection, 1-7
keyboard 1,
  description of, 4-1 — 4-2
keyboard 2,
  description of, 4-2 — 4-3
keys
  angled-arrow, 4-4
  backspace, 4-6
  BREAK, 4-6
  broad vertical arrow, 4-4
  CAPS LOCK, 4-4
  carriage return, 4-4
  CR, 4-4
  CTRL, 4-5, 4-6, 4-7
  SCROLL LOCK, 4-6
  SHIFT, 4-4, 4-5, 4-6

L

labels, diskette
  permanent, 3-2 — 3-3
  temporary, 3-2 — 3-3
  writing on, 3-3
languages, programming
  supported by system,
    list of, 1-1

letter-quality printer, 1-9
lights, indicator, for diskette
    drives, 3-5 — 3-6
listing, how to stop, 4-6

M

memory, capacity of, 1-1
messages
   autodiagnostic, 4-8
   Fail, 4-8
   response to, 4-8
   start-up, 4-8
modules, optional,
   connecting, 2-3
monitor (see: video display)
mouse, 1-7
multi-character keys, 4-5

N

numbers, a warning about, 4-3
numeric entries, a warning
    about, 4-3

O

ON/OFF switch
   in OFF position, 2-9
   location of, 2-4
operating systems
   supported by system, list
    of, 1-1
optional modules,
   connecting, 2-3
options, external storage, list
   of, 1-1 — 1-2
order, how to check, B-1

P

p-System (UCSD p-System), 1-1
Pascal, 1-1
PCOS 1-1, 3-7
physical planning, 2-1 — 2-2
power outlet
   CAUTION notice, 2-1
   WARNING notice, 2-8
powering on the system, 4-7
PR 15B printer, 1-9
PR 17B printer, 1-9
PR 320B printer, 1-9
printer
   how to connect, 2-8
printers
   daisy wheel, 1-9
   dot matrix, 1-9
   letter-quality, 1-9
   supported by system, list
    of, 1-9
programming languages
   supported by system, list
    of, 1-1
protection of diskette
   contents, 3-3 — 3-4
   drives, 2-8

R

rear of basic module, 2-4
receiving your order, B-1
removing a diskette, 3-6
repeat feature on keyboard, 4-6
reset
   hardware, 4-9
   system, 4-7
reset button, 4-9

S

screen blank on start-up, 4-8
SCROLL LOCK key, 4-6

INSTALLATION AND OPERATIONS GUIDE

INDEX

FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE STATEMENT

Warning: This equipment has been certified to comply with the limits for a Class B computing device, pursuant to Subpart J of Part 15 of FCC Rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this computer. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

INFORMATION TO THE USER

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e., in strict accordance with the operating instructions, reference manuals and the service manual, may cause interference to radio or television reception. It has been tested and found to comply with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a residential installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer with respect to the receiver.
- Move the computer away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- Check that PC board mounting screws, connector screws, and ground wires are well secured.
- Check that PC board slot covers are in place when PC boards are not mounted.

If necessary, the user should consult the dealer for additional suggestions.

The manufacturer cannot be held responsible for the interference caused by unauthorized modifications to the computer.

Connecting of peripherals not supplied by the manufacturer to this computer, requires the use of grounded shielded cables with in-line filter if needed.
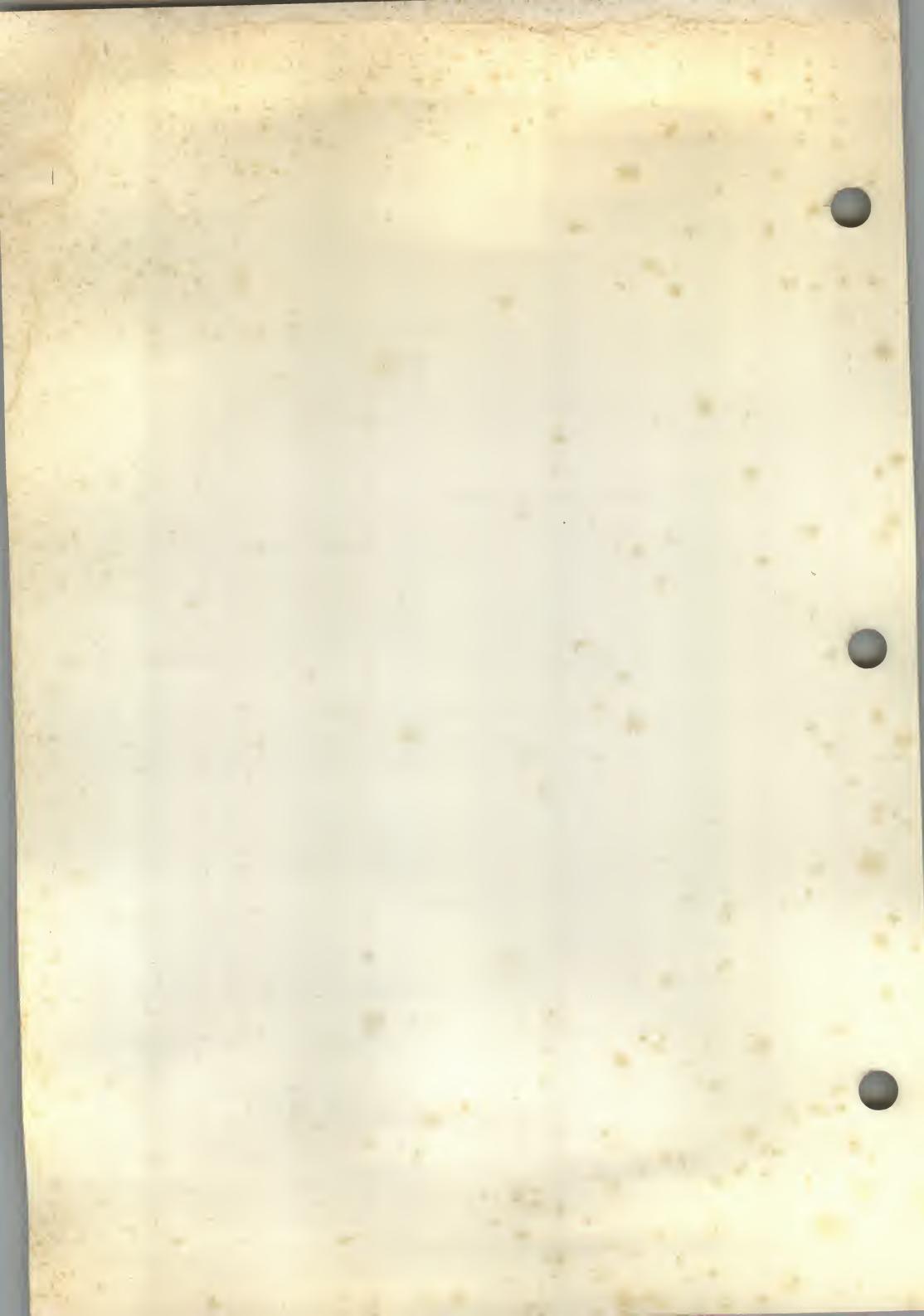
NOTICE

OLIVETTI
PERSONAL
COMPUTER

olivetti